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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,074	06/26/2000	TOSHIYUKI NAKAGAWA	450101-02031	7488

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FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER	
PATHAK, SUDHANSHU C	
ART UNIT	**PAPER NUMBER**
2634	6

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/530,074	NAKAGAWA ET AL.	
	Examiner	Art Unit	
	Sudhanshu C. Pathak	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-11* is/are rejected.

7)☒ Claim(s) *2* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *26 June 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims 1-to-11 are pending in the application.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

   The following title is suggested: A Method and Apparatus for modulating and demodulating data into a variable-length code and providing a medium for implementation.

3. Applicant is reminded of the proper content of an abstract of the disclosure.

   A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

   The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

   Where applicable, the abstract should include the following:
   (1) if a machine or apparatus, its organization and operation;
   (2) if an article, its method of making;
   (3) if a chemical compound, its identity and use;
   (4) if a mixture, its ingredients;
   (5) if a process, the steps.

   Extensive mechanical and design details of apparatus should not be given.

4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

   - Data is modulated to be transmitted..... (Page 1,Background Art, line 1).
   - ...(e.g., SYNC/Sync ID identification section 33).... (Page 15, line 11)

     Does not specify element 33 of which Figure.
   - Known as one of such data modulating....(Page 1,Background Art, line 3).

   There seems to be a literal translation of the specification instead of in context.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

   The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 5 characterizes the sync pattern selected in the data modulating method and apparatus to be a DC-free pattern. The specification on Page 6 gives a description as to how a DC-free train of codes are characterized, and examples of DC-free sync signal patterns

are described on Page 22 (Table 7), however it is not clear how these patterns are DC-free in context to the description on Page 6.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 & 3, 4, 6, 7, 9 & 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ino et al. (5,506,581).

Regarding to Claim 1, Ino discloses a data-modulating apparatus (Fig. 1) comprising an encoding circuit (Fig. 1, element 11), a pattern generating circuit (Fig. 1, element 12). The encoding circuit translates the sequence of input data into the coded data (Column 6, lines 66-67), in accordance with the coding suited to the transmission or recording (Column 7, lines 1-2). The apparatus further comprises a pattern inserting circuit (Fig. 1, element 13) for inserting patterns at arbitrary positions of the coded data (Column 8, lines 60-68). The patterns consisting of "Tdc" bits are inserted into the coded data at the pre-set intervals "Tcode" (Column 9, lines 49-56 & Fig. 2). This may yield adding a pattern after the minimum run or a pattern that breaks the maximum run, so as not to break the coding rule (Column 9, lines 58-67 & Column 13, lines 49-67).

Regarding to Claim 3, Ino describes a data modulating apparatus as described above. Ino further discloses data-modulating apparatus for modulating information

data comprising plurality of pattern signals (Column 19, Claim 2). Ino further discloses an embodiment to the invention as consisting in that patterns comprise three different patterns (Column 2, lines 30-40). Ino further describes these inserting patterns (Column 9, lines 29-34).

Regarding to Claim 4, Ino describes a data modulating apparatus as described above. Ino discloses an embodiment to the invention as consisting in that patterns comprise three different patterns (Column 2, lines 30-40). Ino further describes these inserting patterns to differ from each other at two or more bits when the sync patterns are detected (Column 9, lines 25-34). This thus satisfies the limitation of the claim that the sync patterns are selected such that a detection distance of 2 or more provided between the two or more patterns.

Regarding to Claim 6, Ino describes a data modulating apparatus as described above. Ino further discloses the sync patterns are interchangeable and the selection of the pattern is by an algorithm (Column 9, lines 15-22). Ino also describes that the selection of the pattern is such that the absolute value of the sum or the digital sum value (DSV) of the modulated coded data is minimized (Column 9, lines 23-34 & Column 10, lines 15-21 & Column 11, lines 10-20).

Regarding to Claim 7, Ino discloses a data-modulating method (Fig. 1) comprising an encoding circuit (Fig. 1, element 11), a pattern generating circuit (Fig. 1, element 12). The encoding circuit translates the sequence of input data into the coded data (Column 6, lines 66-67), in accordance with the coding suited to the transmission or recording (Column 7, lines 1-2). The method further comprises a

pattern inserting circuit (Fig. 1, element 13) for inserting patterns at arbitrary positions of the coded data (Column 8, lines 60-68). The patterns consisting of "Tdc" bits are inserted into the coded data at the pre-set intervals "Tcode" (Column 9, lines 49-56 & Fig. 2). This may yield adding a pattern after the minimum run or a pattern that breaks the maximum run, so as not to break the coding rule (Column 9, lines 58-67 & Column 13, lines 49-67 & Column 19, Claim 3).

Regarding to Claims 9 &10 (apparatus and method), Ino discloses a data-demodulating apparatus and method (Fig. 5) comprising a sync signal detecting means for detecting, from a train of codes, a sync signal (Fig. 5, element 24). The sync signal pattern for inserted at arbitrary positions of the coded data (Column 8, lines 60-68). The patterns consisting of "Tdc" bits are inserted into the coded data at the pre-set intervals "Tcode" (Column 9, lines 49-56 & Fig. 2). The sync patterns can be inserted that breaks the maximum run, after detecting the minimum run, depending on the value of "Tdc" and "Tcode" which are selected by (Column 9, Equation 1,2 & 3). This satisfies the limitations of Claims 9 and 10.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 8 & 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ino et al. (5,506,581) in view of Kojima et al. (EP 0 779 623 A2).

Regarding to Claims 8 & 11, Ino discloses a data-modulating method and apparatus (Fig. 1) comprising an encoding circuit (Fig. 1, element 11), a pattern generating circuit (Fig. 1, element 12), pattern insertion circuit (Fig. 1, element 13), and a NRZI modulation circuit (Fig. 1, element 14), as described above. Ino further discloses, a data-demodulating method and apparatus (Fig. 5), comprising a decoding circuit (Fig. 5, element 23), a sync detection circuit (Fig. 5, element 24), and a pattern removal circuit (Fig. 5, element 22). However, Ino does not specify a data-providing medium for providing a data modulating/demodulating apparatus with a computer-readable program.

Kojima discloses a CPU (central processing unit) and a memory to be included in the synthesizing circuit (Page 4, lines 30-32 & Fig. 1, element 30). The CPU implements an algorithm (Fig. 7) in the form of a computer program, while providing the sync pattern stored in the memory of the CPU. The CPU selects the stored pattern, which is optimum for the DC suppression from the memory as implemented in the algorithm. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the pattern generation circuit in Ino (Fig. 1, element 12), can be implemented by a CPU and memory unit as described in Kojima. This would provide a more compact and flexible solution for varying the pattern generation and encoding algorithm depending on the information transmitting or recording the information on a recording medium, such as magnetic tape, optical disc.

Allowable Subject Matter

11. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (703) 305-0341. The examiner can normally be reached (Monday-Friday from 8:30 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to: Commissioner of Patents and Trademarks Washington, D.C. 20231

Or faxed to: -

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Part II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600